## FORSPAN ASSESSMENT MODEL FOR CONTINUOUS ACCUMULATIONS--BASIC INPUT DATA FORM (NOGA, Version 8, 8-16-02)

#### **IDENTIFICATION INFORMATION**

Assessment Geologi	ist: R.F. Dubiel	Date:	9/24/2002
Region:		Number:	5
	San Juan Basin	Number:	5022
Total Petroleum Syst	tem:. Lewis Shale	Number:	502202
Assessment Unit:	Lewis Continuous Gas	Number:	50220261
Based on Data as of	: PI/Dwights 2001		
Notes from Assessor	ſ		
	CHARACTERISTICS OF ASSESSMENT UNIT		
Assessment-Unit ty	<b>/pe: Oil</b> (<20,000 cfg/bo) <u>or</u> <b>Gas</b> (≥20,000 cfg/bo) Ga	as	
What is the minimu	m total recovery per cell? 0.02 (mmbo for oil A.U.; b	ocfg for gas A.U.)	
Number of tested cel			
	Ils with total recovery per cell > minimum: 10		
	≥ min.) X Frontier (1-24 cells) Hypoth	etical (no cells)	
Median total recover	y per cell (for cells > min.): (mmbo for oil A.U.; bcfg for gas A.U.)		
	1st 3rd discovered0.5 2nd 3rd0.2	25 3rd 3rd	0.22
Assessment-Unit P	robabilities		
Attribute	Probability of occurrence (	(0-1 0)	
	ate petroleum charge for an untested cell with total recovery ≥ mini	· · · · · · · · · · · · · · · · · · ·	1.0
	e reservoirs, traps, seals for an untested cell with total recovery $\geq$ r		1.0
	le geologic timing for an untested cell with total recovery ≥ minimur		1.0
	3		
Assessment-Unit G	<b>SEOLOGIC Probability</b> (Product of 1, 2, and 3):	1.0	
			_
	ate location for necessary petroleum-related activities for an untest		
with total	al recovery <u>&gt;</u> minimum		1.0
NO OF UNITE	STED CELLS WITH POTENTIAL FOR ADDITIONS TO RESERV	EQ IN THE NEVT 2	O VEADS
NO. OF UNIE	STED CELLS WITH POTENTIAL FOR ADDITIONS TO RESERVE	ES IN THE NEXT 3	UTEARS
1 Total assessmen	nt-unit area (acres): (uncertainty of a fixed value)		
T. Total accoccino	minimum 4,324,000 median 4,804	4.000 maximum	5,284,000
2. Area per cell of u	intested cells having potential for additions to reserves in next 30 y	/ears (acres):	
(values are inher	rently variable)		
calculated	mean <u>105</u> minimum <u>40</u> median <u>10</u>	00 maximum	200
3. Percentage of to	tal assessment-unit area that is untested (%): (uncertainty of a fixe	•	
	minimum 97 median 97	7.5 maximum	98
4 Percentage of ur	stacted assessment unit area that has notontial for additions to res	enves in	
_	ntested assessment-unit area that has potential for additions to res  b): ( a necessary criterion is that total recovery per cell > minimum)	CI VCO III	
(uncertainty of a		4 maximum	40
(uncertainty of a	inco value) illillillillilli Illedidil	- maximum	<del></del>

### **TOTAL RECOVERY PER CELL**

Total recovery per cell for untested cells have (values are inherently variable)	aving poten	itial for addition	ns to reserves	in next 30 y	ears:	
(mmbo for oil A.U.; bcfg for gas A.U.)	minimum _	0.02	median _	0.5	maximum _	6
AVERAGE COPRODUCT F		OR UNTESTED  of fixed but unl			OPRODUCTS	
Oil assessment unit: Gas/oil ratio (cfg/bo) NGL/gas ratio (bngl/mmcfg)		minimum		median	- -	maximum
Gas assessment unit: Liquids/gas ratio (bliq/mmcfg)		1	_	3	-	5
SELECTE		ARY DATA FO		O CELLS		
Oil assessment unit:  API gravity of oil (degrees)	···········	minimum	, - - -	median	- - - -	maximum
Gas assessment unit:						
Inert-gas content (%)		0.00		1.50	_	10.00
CO <sub>2</sub> content (%)		0.00	_	1.00	_	3.00
Hydrogen-sulfide content (%)		0.00	_	0.00	_	0.00
Drilling depth (m)  Depth (m) of water (if applicable)	_	500	_	1200	-	2500
Success ratios: calculated mean Future success ratio (%)	_	minimum 60	_	median 90	_	maximum 95
Historic success ratio, tested cells (%).	95					

#### ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO STATES

**Surface Allocations** (uncertainty of a fixed value)

1. Colorado	represents	14.63	areal % of the assessment	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			<u>15</u> 0	
2. New Mexico	represents	85.37	areal % of the assessment	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median 	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			<u>85</u> 0	
3	represents		areal % of the assessment	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
4	represents		areal % of the assessment	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				

5	represents	areal % of the assessment unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
6	represents	areal % of the assessment	unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
7	represents	areal % of the assessment	unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
8	represents	areal % of the assessment	unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				

## ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES Surface Allocations (uncertainty of a fixed value)

1. Federal Lands	_represents	37.81	_areal % of the	assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			38		
2. Private Lands	_represents _	17.33	_areal % of the	assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	-	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			17 0		
3. Tribal Lands	represents	40.73	areal % of the	assessment	unit
3. Tribal Lands  Oil in oil assessment unit:  Volume % in entity	_represents _ minimum	40.73	_areal % of the a		unit maximum
Oil in oil assessment unit:  Volume % in entity		40.73	_		
Oil in oil assessment unit:  Volume % in entity		40.73	median		maximum
Oil in oil assessment unit:  Volume % in entity	minimum	40.73	median	assessment	maximum

5. CO State Lands	represents	0.28	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)		0.00	0 0	
6. NM State Lands	_represents _	3.86	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			4	
7	_represents _		areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
8	_represents _		areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				

9	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
10	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median 	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
11	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
12	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity			

## ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO FEDERAL LAND SUBDIVISIONS Surface Allocations (uncertainty of a fixed value)

Bureau of Land Management (BLM)	represents	30.75	_areal % of the assessmen	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			31 0	
2. BLM Wilderness Areas (BLMW)	represents		_areal % of the assessmen	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
3. BLM Roadless Areas (BLMR)	_represents _		_areal % of the assessmen	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
National Park Service (NPS)		0.05		
	_represents _	0.05	_areal % of the assessmen	t unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	represents minimum 	0.05	_ areal % of the assessmen median	maximum

5.	NPS Wilderness Areas (NPSW)	represents		_areal % of the	e assessment	unit
'	l in oil assessment unit: Volume % in entity Portion of volume % that is offshore (0-100%)	minimum		median		maximum
,	as in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
6.	NPS Protected Withdrawals (NPSP)	represents		_areal % of the	e assessment	unit
'	l in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
,	as in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					
7.	US Forest Service (USFS)	_represents	6.67	_areal % of the	e assessment	unit
'	l in oil assessment unit: Volume % in entity Portion of volume % that is offshore (0-100%)	minimum		median		maximum
'	as in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			7		
8.	USFS Wilderness Areas (USFSW)	_represents		_areal % of the	e assessment	unit
	l in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median		maximum
1	as in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)					

9. USFS Roadless Areas (USFSR)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
10. USFS Protected Withdrawals (USFSP)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
11. US Fish and Wildlife Service (USFWS)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
12. USFWS Wilderness Areas (USFWSW)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			

13. USFWS Protected Withdrawals (USFWSP)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
14. Wilderness Study Areas (WS)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
15. Department of Energy (DOE)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity			
Portion of volume % that is offshore (0-100%)		<del></del>	
16. Department of Defense (DOD)	represents	areal % of the assessment	unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median 	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			

17. Bureau of Reclamation (BOR)	represents	0.34	_areal % of the assessmer	nt unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			0 0	
18. Tennessee Valley Authority (TVA)	_represents _		_areal % of the assessmer	nt unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
19. Other Federal	_represents _		_areal % of the assessmer	nt unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
20	represents		_areal % of the assessmer	nt unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				

## ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO ECOSYSTEMS Surface Allocations (uncertainty of a fixed value)

Grand Canyon Lands (GDCL)	_represents _	3.13	_areal % of the ass	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum 
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			5	
Navajo Canyonlands (NVCL)	represents	72.31	areal % of the ass	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			80	
3. South-Central Highlands (SCHL)	_represents _	9.53	_areal % of the ass	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum 
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			<u>5</u>	
4. White Mountain-San Francisco Peaks (WMSF)	_represents _	15.03	_areal % of the ass	sessment unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum		median	maximum 
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			10	

5	represents	areal % of the assessment unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
6	represents	areal % of the assessment	unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
7	represents	areal % of the assessment	unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
8	represents	areal % of the assessment	unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				

9	represents	areal % of the assessment unit		
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
10	represents	areal % of the assessment	t unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
11	represents	areal % of the assessment	t unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				
12	represents	areal % of the assessment	tunit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum	
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)				

## ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES Subsurface Allocations (uncertainty of a fixed value)

Based on Data as of:			
All Federal Subsurface	_represents	areal % of the assessment unit	
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			
2. Other Subsurface	represents	areal % of the assessmen	ıt unit
Oil in oil assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)	minimum	median	maximum
Gas in gas assessment unit:  Volume % in entity  Portion of volume % that is offshore (0-100%)			